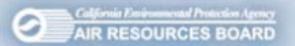


## From Climate to Economics: Anticipating Impacts of Climate Change in California

#### Climate Change Overview: California Air Resources Board

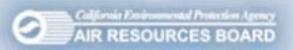
Alan C. Lloyd, Ph.D California Air Resources Board June 9, 2004





## ARB Climate Change Activities

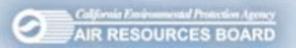
- Partnerships
  - California Fuel Cell Partnership
  - California Stationary Fuel Cell Collaborative
  - California Hydrogen Highway Network
- AB 1493
  - Requirements
  - Highlights of draft staff proposal
  - Next steps





## AB 1493 Requirements

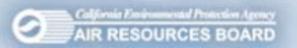
- Adopt regulations by January 1, 2005
  - Maximum feasible reduction of greenhouse gases from new motor vehicles
    - CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFC
  - Economical to owner/operator
- Regulations apply to 2009 and later model years





## **Draft Staff Proposal**

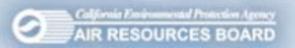
- Released for public comment
- Provides early overview of complete methodology
- Details subject to change
  - Work still underway
  - Public comment





## **Technology Evaluation**

- Define best technology packages for each vehicle type
  - Near, mid and longer term availability
- Model Green House Gas reductions
  - Looking carefully at combined effect
- Estimate cost and lifecycle cost





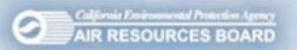
### **Technology Evaluation**

		Compared to 2009	
		Reduction	Cost
Near Term	PC and T1	-21.1%	\$328
	T2	-18.6%	\$363
Mid Term	PC and T1	-28.2%	\$1,047
TOTAL THE	T2	-22.6%	\$1,210

 Reduced operating cost provides payback to vehicle owner:

Near term (most packages): 0 to 5 years

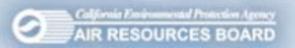
– Mid term (most packages): 4 to 7 years





#### Fleet-Level Standard

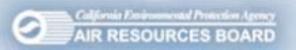
- Translate vehicle-level results into standards applicable to manufacturer fleet
  - Performance-based
    (will not require specific technologies)
  - "Bubble" all on-vehicle climate change pollutants and sources (CO<sub>2</sub> equiv. gram/mi.)
  - Consider differences in upstream emissions for alternative fuel vehicles





#### Fleet-Level Standard

- Two tier approach
  - One standard for PC and T1, another for T2
  - Set to be technically feasible for heaviest fleet
- Two steps
  - Near term (2009)
  - Mid term (2012)
- Phase in each step over three years



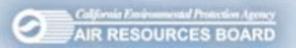


# Fleetwide Emission Reductions (vs. 2002)

"Static" reductions (no change in fleet)

Near Term	PC and T1	-20.7%
	T2	-22.4%
	Fleet	-21.5%
Mid Term	PC and T1	-29.2%
	T2	-26.7%
4	Fleet	-28.0%

 Future fleet reductions will be smaller if current sales trends (>trucks) continue



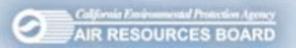


## **Alternative Compliance**

 Regulations must provide maximum flexibility, and allow alternative methods of compliance

But...

 Use of alternatives must not undercut the purpose of the bill, which is to improve vehicles





# Alternative Compliance-Draft Proposal

- Allow averaging, banking, trading, aggregation across pollutants
- Use emission credit trading criteria
- No increase in other emissions
- Must be sponsored by auto manufacturer
- Must involve 2009 and later Pavley vehicles, or alternative fuels used in such vehicles





## **Credit For Early Action**

- Regulations must grant credit for reductions achieved prior to operative date
- Manufacturers will earn credit if below initial standard prior to operative date



## **Economic Analysis**

- Potential impacts on state economy
  - Effect on job creation, business expansion,
    California business competitiveness
- Consumer response
  - Vehicle sales
  - Driving
- Preliminary analysis--no significant effects





## **Next Steps**

July

August 6

Sept. 23

Workshops on draft staff report

Release final staff report

Board hearing

